

# Extracranial Head And Neck Schwannomas

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## Abstract

**Objective:** 3 patients with head and neck schwannomas were presented. The clinical and pathological features of head and neck schwannomas are discussed.

**Patients And Methods:** We conducted a retrospective study from 2004 to 2006 with analysis of head and neck schwannomas by histopathologic investigations.

**Results:** Extracranial head and neck schwannomas are rare tumours. The preoperative diagnosis may be difficult and it is often not made until the time of surgery. The cases presented were diagnosed by clinical suspicion and histopathological confirmation. In all cases the treatment was done by surgical excision.

**Conclusion:** It is important to consider schwannomas in the differential diagnosis of neck masses. The definitive diagnosis relies on clinical suspicion and histopathological confirmation. In the treatment of head and neck schwannomas, complete surgical excision is efficient.

This work was done in Bakirkoy Dr. Sadi Konuk Education and Research Hospital ORL Department

## INTRODUCTION

Schwannomas are benign, slow-growing, encapsulated tumours deriving from the perineural cells located in the nerve sheath. They were first described by Verocay (1). They can arise from any peripheral, cranial or autonomic nerves, and show a predilection for the head and neck region.

The preoperative diagnosis is difficult. Although preoperative imaging or fine needle aspiration biopsy (FNAB) may help to reveal diagnosis, they are inadequate. The definitive diagnosis is made by histopathological examinations.

Treatment of schwannomas is surgical excision. They consist of a true capsule facilitating the surgical dissection.

In this article 3 patients with head and neck schwannomas were presented with their management, and discussed.

## PATIENTS AND METHODS

Three patients with head and neck schwannomas, one vagal, one sympathetic chain and one undefined, were discussed with reviewing the literature. The definitive diagnosis of schwannoma made based on clinical suspicion and

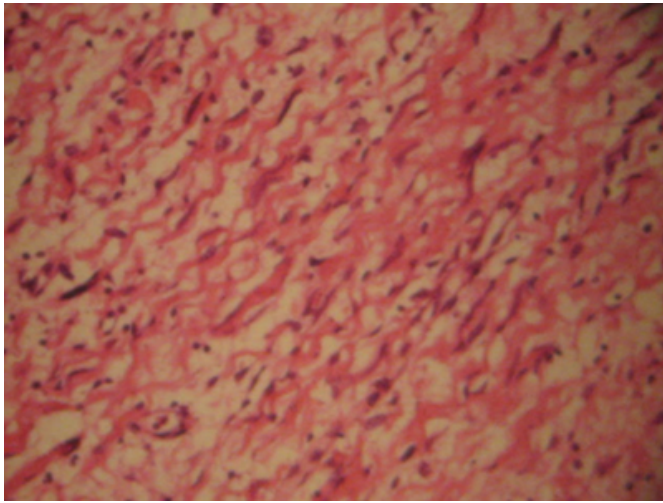
histopathological evaluation.

## CASE 1

A 59 year-old woman referred to our clinic complaining of a painless, immobile, slowly enlarging, right-sided neck mass that was first noticed approximately 3 months ago. The mass was 5x6 cm in diameter and lying between the inferior border of the mandible and the anterosuperior border of the sternocleidomastoid muscle. Indirect laryngoscopic and other physical examinations were normal. Fine-needle aspiration biopsy (FNAB) of the mass was performed but didn't help to reveal the diagnosis. For the definitive diagnosis the mass was totally excised under general anaesthesia. The mass was originating from the cervical sympathetic chain. It was encapsulated, and the margins of the mass appeared to be relatively well-defined. The histopathologic evaluation of the specimen was consistent with a benign schwannoma (figure 1, 2). Postoperatively Horner syndrome was evident, of which recovered fortunately. After a 1 year of follow-up period no evidence of local recurrence has been detected.

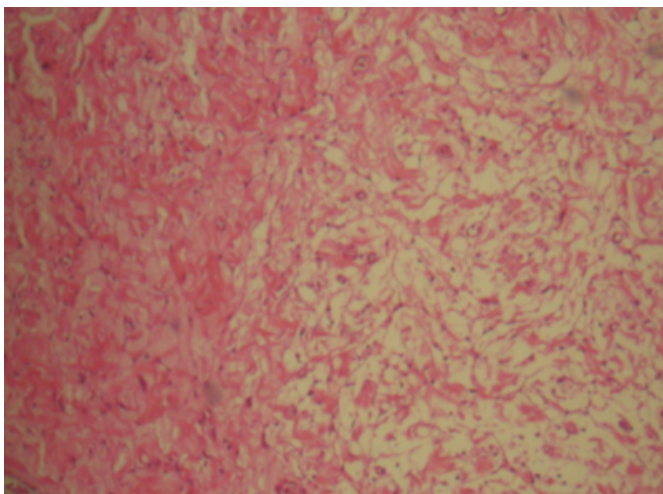
### Figure 1

Figure 1: Tumor consists of cells with wavy, fuziform nuclei and uncospicious cytoplasmic borders. (Hematoxylin & eosin stain, original magnification  $\times 100$ ).



### Figure 2

Figure 2: No cytologic atypia or mitotic activity was identified. Antoni A regions of the tumor are more cellular and compact, while Antoni B areas are more loosely organized and hypocellular. (Hematoxylin & eosin stain, original magnification  $\times 40$ ).



### CASE 2

A 45 year-old female patient came to our clinic with a 6 month history of slowly enlarged, painless, mobile, 5x8 cm in size neck mass. It was located at the level of the left mandibular angle, and extended inferiorly in the jugular digastric region to the level of the supraclavicular fossa. FNAB, which was performed preoperatively, didn't help to reveal the diagnosis. After excision of the mass totally the diagnosis of schwannoma was rendered by histopathologic evaluation. Horner syndrome was developed

postoperatively, which was unrecovered. Although we couldn't be able to identify the neurogenic origin during the operation, by this clinical finding the nerve of origin is presumed to be the cervical sympathetic chain. There are no signs of local recurrence during a 3 years of follow-up period.

### CASE 3

A 25 year-old female patient presented with a history of globus sensation and progressive dysphonia over a period of 3 months. Indirect laryngoscopy showed a 2x3 cm mass localized in the right false vocal cord. True vocal cords demonstrated normal mobility. A punch biopsy from the mass was taken under local anaesthesia. Although the report indicated a benign epithelial lesion, it didn't reveal the definitive diagnosis. For the definitive diagnosis and treatment, the surgical excision was done by laryngo-fissure technique. The smooth, encapsulated, and well-defined mass was totally removed while preserving the integrity of the laryngeal mucosa and the surrounding structures to preserve the laryngeal function. The diagnosis was reported as schwannoma by histopathologic evaluation. The patient has persistent vocal fatigue and intermittent dysphonia, possibly secondary to scarifying the superior laryngeal nerve. After a 3 years of follow-up period there is no evidence of local recurrence.

### DISCUSSION

25% to 45% of extracranial schwannomas occur in the head and neck region (2,3,4,5). The cervical schwannomas can arise from the cranial nerves IX-XII, the sympathetic chain, the cervical plexus, and the brachial plexus (1, 6).

In a series of 35 head and neck schwannomas, Sakao et al found; 10 vagal, 5 brachial chain, 3 sympathetic chain tumours and in 17 cases the origin of the tumour couldn't be distinguished (7). The vast majority of reported laryngeal schwannomas are supraglottic, with the aryepiglottic false and false vocal cord being the most common sites (8). They originate mostly from the internal branch of the superior laryngeal nerve (9). In our first case the mass located on the false vocal fold was originating from the n. laryngeus superior. In the second case we couldn't be able to identify the neurogenic origin during the operation. In this patient the nerve of origin is presumed to be the cervical sympathetic chain because of developing Horner syndrome postoperatively. In the third case the mass was originating from the cervical sympathetic chain.

In different articles it is said that they can occur equally in men and women (9, 10), or more frequently in men than in women (11), or vice versa (12). Our three patients were women.

Cervical schwannomas typically present between the fourth and sixth decades of life but may occur at any age (6, 11). The ages of our three patients were; 25, 45 and 59, respectively.

Schwannomas often present as a painless slow-growing neck mass, without neurological symptoms initially (13).

Depending on the nerve of origin and localization, the mass effect can seldomly cause variable symptoms like cough, dysphagia, cranial nerve paralysis, Horner syndrome, hearing loss (13, 14, 15). Two of our patients had slowly enlarging, painless neck mass and the third one had globus sensation and dysphonia.

The differential diagnosis of these tumours must include metastatic or reactive lymphadenopathy, some soft tissue neoplasms (like fibroma, leiomyoma, lipoma) paraganglioma, angioma, carotid artery aneurysm, branchial cleft cyst, and other neurogenic tumours (16, 17, 18).

The preoperative diagnosis of schwannomas in the head neck region is difficult. Most of the examinations, like FNAB, may help to reveal diagnosis, but they are inadequate. FNAB is very effective in differentiating benign and malign tumours of soft tissue (19). Although FNAB is very useful in most neck masses, it has a low accuracy in the diagnosis of neural tumours (9, 16, 20) and has not gained widespread acceptance in the diagnosis of these tumours (15). We performed FNAB on two cases but it failed to reveal the diagnosis in both cases.

### CONCLUSION

In summary, cervical schwannomas, which most often present as asymptomatic unilateral neck masses, are rare tumours. The preoperative diagnosis may be difficult and it is often not made until the time of surgery. The definitive diagnosis relies on clinical suspicion and histopathological confirmation.

In the treatment of head and neck schwannomas, complete surgical excision with appropriate approaches is efficient. It is important bearing in mind possible vagal or sympathetic chain injury. Local recurrence is extremely rare.

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